

# (12) UK Patent Application (19) GB (11) 2 275 723 (13) A

(43) Date of A Publication 07.09.1994

(21) Application No 9301056.9

(22) Date of Filing 20.01.1993

(71) Applicant(s)

**Kew Lian (PTE) Ltd**

(Incorporated in Singapore)

No 33 39 41 43 Kim Yam Road, SINGAPORE 0923,  
Singapore

(72) Inventor(s)

**Kim Guan Goh**

(74) Agent and/or Address for Service

**Langner Parry**

High Holborn House, 52-54 High Holborn, LONDON,  
WC1V 6RR, United Kingdom

(51) INT CL<sup>5</sup>

**F16B 47/00**

(52) UK CL (Edition M)

**E2A ACAS A190 A423 A503 A524**

(56) Documents Cited

**GB 2245638 A GB 1171520 A GB 0383690 A**

(58) Field of Search

**UK CL (Edition M) E2A ACAS**

**INT CL<sup>5</sup> F16B 47/00**

(54) Wall hanger suction device

(57) A wall hanger includes a convex plastic vacuum mount 11 fastened to a smooth, flat wall 6 by means of a vacuum action; a cover 2 located over the plastic vacuum mount; a hanger 3 hung on a screw rod 14 on the plastic vacuum mount, and a screw nut 4 threaded on the screw rod 14 to secure the hanger 3 to the cover 2. The plastic vacuum mount 11 has an annular groove 131 into which a peripheral flange 211 of the cover 2 is located. A vacuum is produced within the plastic vacuum mount by turning the screw nut 4 in one direction to pull up said plastic vacuum mount 11 from the wall toward the inside surface of said cover. The vacuum is arranged to disappear as the screw nut is turned in the reverse direction to let the plastic vacuum mount return to its former shape.

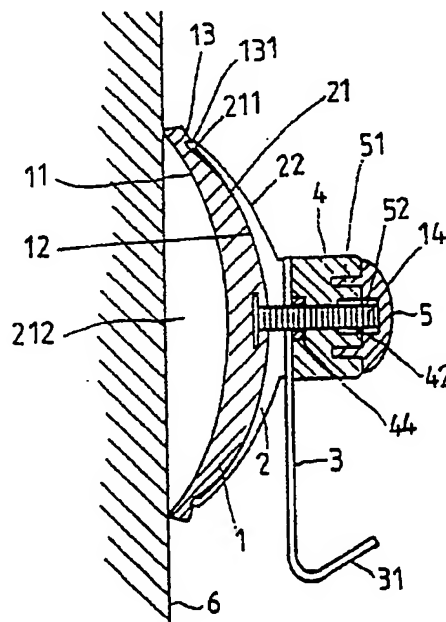


FIG.5

GB 2 275 723 A

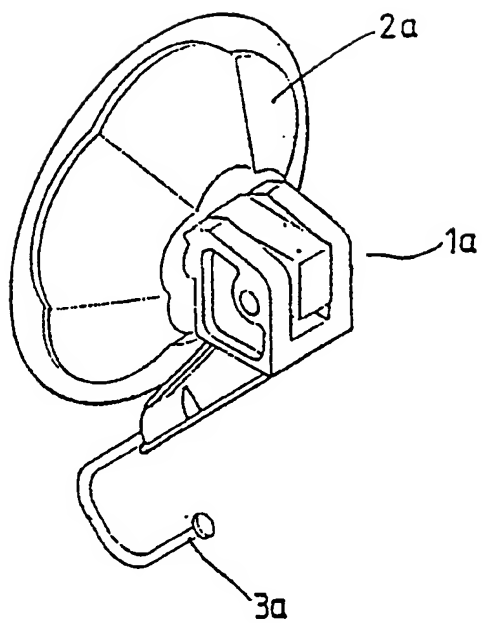


FIG.1

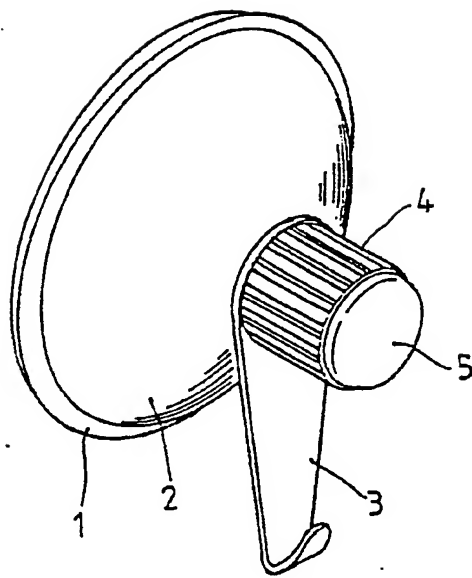


FIG.2

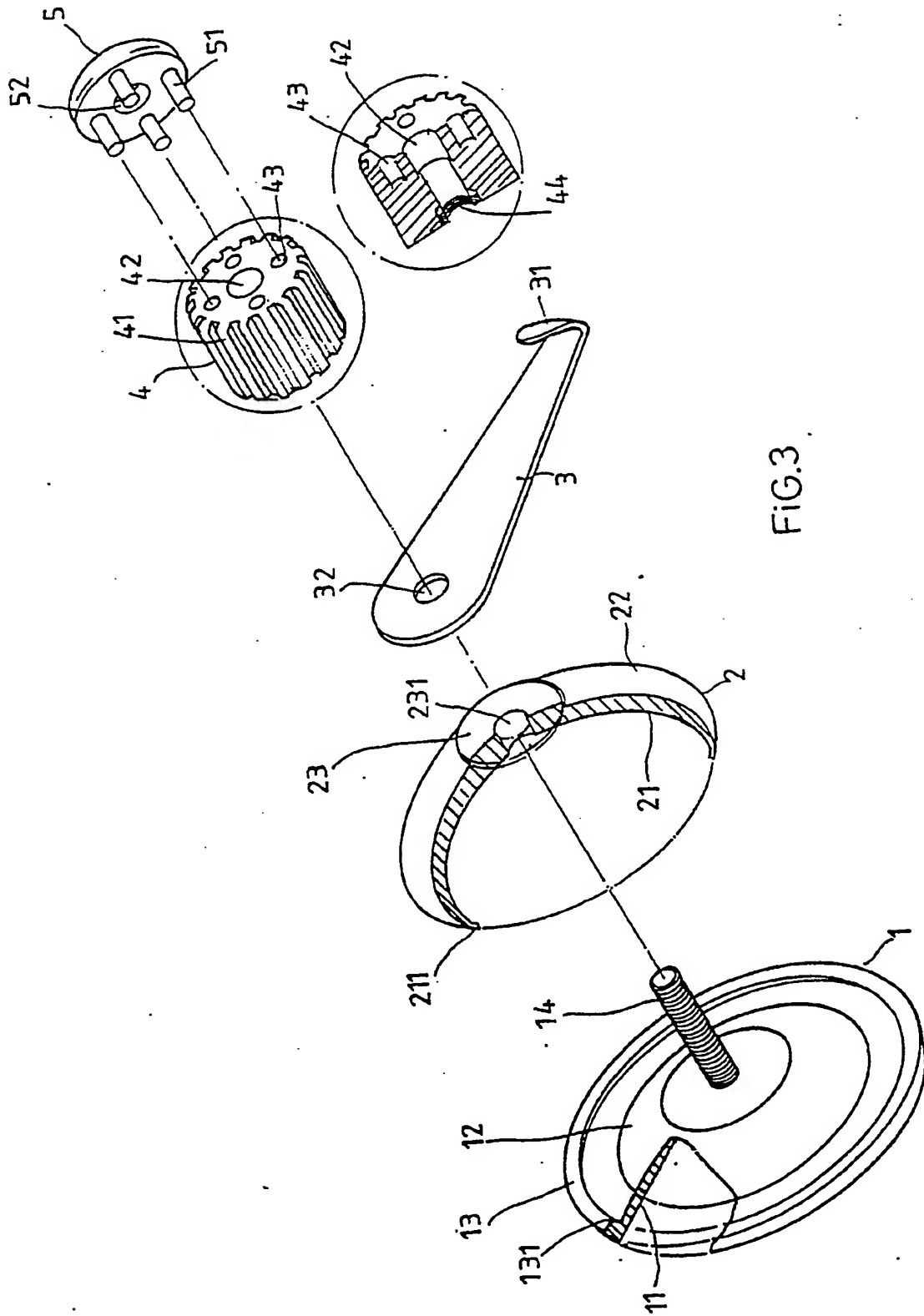


FIG. 3

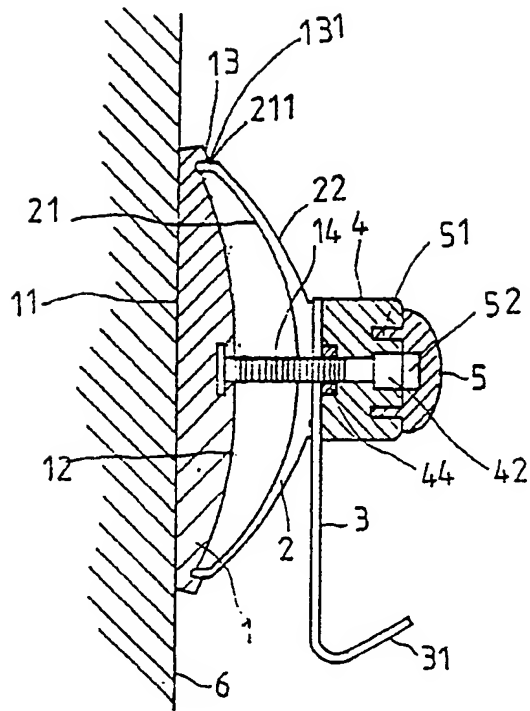


FIG.4

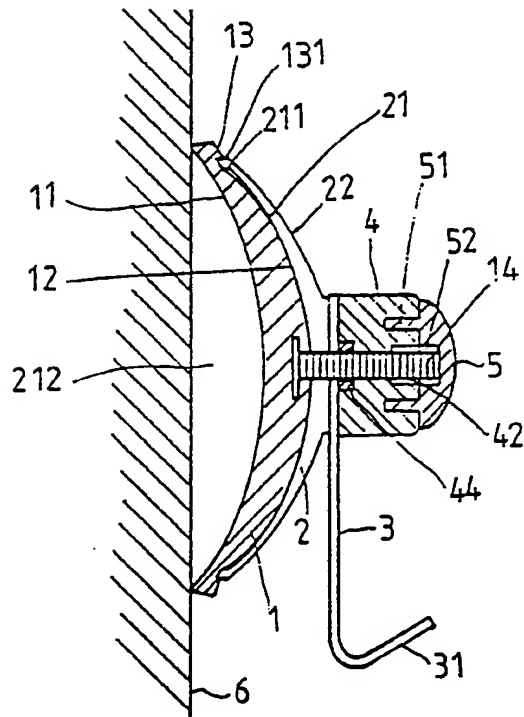


FIG.5

WALL HANGER

BACKGROUND OF THE INVENTION

The present invention relates to a wall hanger for hanging things on a wall.

5 A variety of wall hangers are known, and widely used for hanging things on walls. A wall hanger may be adhered to a wall, or directly fastened to a wall by nails or anchoring devices, or detachably attached to a wall by a vacuum mount. A wall hanger can not be conveniently removed from the wall for changing the position if it is fastened to the wall by adhesive means or nails. Fig. 1 illustrates a wall hanger comprised of a hook connected to a disk-like rubber vacuum mount, which can be conveniently attached to a smooth, flat wall, and then removed from the wall. 10 However, this wall hanger must be skillfully operated so that a sufficient vacuum can be produced to firmly retain the rubber vacuum mount in place. If the vacuum is not sufficient, the wall hanger will drop from the wall easily. Further, this structure of wall hanger is not durable in use, because the elastic material property of the disk-like rubber vacuum mount tends to be worn out after long uses. When the elastic material property of the disk-like rubber vacuum mount is being gradually worn out, the vacuum action of 20

the disk-like rubber vacuum mount is relatively weakened.

#### SUMMARY OF THE INVENTION

The present invention eliminates the aforesaid disadvantages. According to the preferred embodiment of the present invention, the wall hanger  
5 comprises a plastic vacuum mount fastened to a smooth, flat wall by means of a vacuum action, a covering disk covered over the plastic vacuum mount, a hanger hung on a screw rod on the plastic vacuum mount, a screw nut  
10 threaded on the screw rod to secure the hanger to the covering disk, and an ornament cap fastened to the screw nut by doveled joints. The vacuum mount has a flat bottom surface and a convex top surface. Turning the screw nut on the screw rod causes the vacuum mount to  
15 curve outwards in producing a vacuum after the vacuum mount has been held to a smooth, flat wall with the hand. Therefore, the elastic material property of the vacuum mount is less effective to the intensity of the vacuum. The vacuum is disappeared as the screw nut is  
20 been turned in the reverse direction to let the plastic vacuum mount return to its former shape. The covering disk facilitates the plastic vacuum mount to produce a vacuum, and simultaneously protect it against damage. Further, the aforesaid arrangement allows  
25 the hook to be replaced by a different member of the

same function.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is an elevational view of a wall hanger according to the prior art;

5 Fig. 2 is an elevational view of a wall hanger according to the present invention;

Fig. 3 is an exploded view of the wall hanger of Fig. 2;

10 Fig. 4 is an installed view showing the wall hanger of Fig. 2 mounted on a flat wall; and

Fig. 5 illustrates a vacuum formed between the flat wall and the plastic vacuum mount.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

15 Referring to Figs. 2 and 3, a wall hanger in accordance with the present invention is generally comprised of a plastic vacuum mount 1, a covering disk 2, a hook 3, a screw nut 4, and a cap 5.

20 The plastic vacuum mount 1 comprises a flat bottom surface 11, a convex top surface 12, a circular peripheral flange 13, an annular groove 131 around the convex top surface 12 along the circular peripheral flange 13, a vertical center screw rod 14.

The covering disk 2 fits over the convex top



surface 12 of the plastic vacuum mount 1, comprising a downward peripheral flange 211 around a hollow, rounded inside surface 21 thereof, a center hole 231 through a plane 23 at the center of a convex outside surface thereof 22.

The hook 3 is made from a flat plate, having a mounting hole 32 on one end and a hooked portion 31 on an opposite end.

The screw nut 4 comprises a corrugated peripheral surface 41 for easy turning with fingers, a center through hole 42 at the center through its length, an inner thread 44 on the center through hole 42, and a plurality of pin holes 43 at the top equiangularly spaced around the center through hole 42.

The cap 5 comprises a recessed hole 52 at the center of a bottom surface thereof, and a plurality of bottom pins 51 around the recessed hole 52 respectively fitted into the pin holes 43 on the screw nut 4.

The assembly process of the wall mount is easy and outlined hereinafter. The downward peripheral flange 211 of the covering disk 2 is inserted into the annular groove 131 on the plastic vacuum mount

1 for permitting the screw rod 14 to extend out of the  
center hole 231 on the plane 23,      The screw rod 14 is  
then inserted through the mounting hole 32 on the hook 3  
and screwed up with the inner thread 44 on the center  
5 through hole 42.      Therefore, the hook 3 becomes firmly  
retained to the covering disk 2 by the screw nut 4.  
The cap 5 is then fastened to the screw nut 4 by  
inserting the bottom pins 51 into the pin holes 43 for  
permitting the top end of the screw rod 14 to be firmly  
10 fitted into the recessed hole 52.

Referring to Figs. 4 and 5, the plastic  
vacuum mount is attached to a smooth, flat wall 6, then  
the screw nut 4 is turned in one direction to pull up  
the plastic vacuum mount 11 for permitting the convex  
15 top surface 12 to closely attach to the hollow, rounded  
inside surface 21 in causing a vacuum 212 inside the  
plastic vacuum mount 1.      Therefore, the circular  
peripheral flange 13 of the plastic vacuum mount 1  
becomes stuck to the smooth, flat wall 6 by means of the  
20 effect of the vacuum 212.      After installation,  
objects can be hung on the hooked portion 31 of the hook  
3.      The wall hanger can be removed from the smooth,  
flat wall 6 by turning the screw nut 4 in the reversed  
direction to release the vacuum 212.

CLAIMS:

1. A wall hanger comprising: a plastic vacuum mount having a convex surface, a peripheral flange, a groove around said convex surface at the junction with said peripheral flange, a central screw member extending outwardly from said convex surface; cover means mountable over said convex surface of said plastic vacuum mount, said cover means comprising a peripheral flange around a hollow rounded inside surface thereof, an aperture located controller thereof through which said screw member of said plastic vacuum mount is arranged to extend, the peripheral flange of said cover means being engagable in the groove on said plastic vacuum mount; hanger means being mountable on the side of the cover means remote from that side adjacent said plastic vacuum mount; and securing means mountable on said member of said plastic vacuum mount to secure said hook to said means so that in use the plastic mount is located against a cover; flat surface and the securing means operated to move the screw member and plastics mount towards the cover means to create a vacuum between the said surface and the plastic mount and secure the wall hanger to the said surface.

2. A hanger as claimed in claim 1, wherein the plastics mount is circular.

3. A hanger as claimed in claim 1 or 2, wherein the groove in the plastics vacuum mount is annular.

4. A hanger as claimed in claim 3, wherein the cover means is a circular convex plate.

5. A hanger as claimed in any one of the preceding claims, including an ornamental cap fastened to the securing means by dowel joints.

6. A wall hanger substantially as hereinbefore described with reference to, and as illustrated in, Figs. 2 to 5 of the accompanying drawings.

Relevant Technical Fields

(i) UK Cl (Ed.M) E2A (ACAS)

(ii) Int Cl (Ed.5) F16B 47/00

Databases (see below)

(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

(ii)

Search Examiner  
P A MAKIN

Date of completion of Search  
25 MAY 1994

Documents considered relevant  
following a search in respect of  
Claims :-  
1-6

Categories of documents

- |  |   |
|--|---|
| <p><b>X:</b> Document indicating lack of novelty or of inventive step.</p> <p><b>Y:</b> Document indicating lack of inventive step if combined with one or more other documents of the same category.</p> <p><b>A:</b> Document indicating technological background and/or state of the art.</p> | <p><b>P:</b> Document published on or after the declared priority date but before the filing date of the present application.</p> <p><b>E:</b> Patent document published on or after, but with priority date earlier than, the filing date of the present application.</p> <p><b>&amp;:</b> Member of the same patent family; corresponding document.</p> |
|--|---|

Category	Identity of document and relevant passages	Relevant to claim(s)
A	GB 2245638 A (HUNG MEI BRUSH) see particularly Figures 8 and 9	1
A	GB 1171520 (FANLO) whole document	1
A	GB 383690 (ANNS) whole document	1

Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).